

DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
REGION 9  
ALLEGHENY NATIONAL FOREST

Re-Ad Lick Run Timber Sale

FR 449C	Midway Spur C	0.1 Miles Reconst. – Maintenance – Level C
FR 449D	Midway Spur D	0.2 Mile Reconst. – Maintenance – Level D
FR 450	Beaver Creek	0.1 Miles Reconst. – Maintenance – Level C

Bradford Ranger District  
Forest County  
Pennsylvania

Lick Run Timber Sale .....	1
Schedule of Items .....	3
General Notes .....	4
Road Log - Work Descriptions.....	5
Roadbed Details.....	9


The location and design elements of this facility have been correlated with the plans, policies and constraints of the approved Coalbed Run Environmental Assessments.

Plans are to be used with "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects FP-03 with Special Project Specifications there to included in this contract.

Prepared By:

Iran E. Martinez

Approved By:

 4/30/13


District Ranger

Date

Acting

  
Forest Engineer

5/2/13  
Date

  
Forest Supervisor

5/2/13  
Date

# Re-Ad Lick Run Timber Road Work

HICKORY TWP  
FOREST

KINGSLEY TWP  
FOREST

FR449F

FR449CA

FR449C

FR449E

FR449CC

FR449

FR449D

FR450

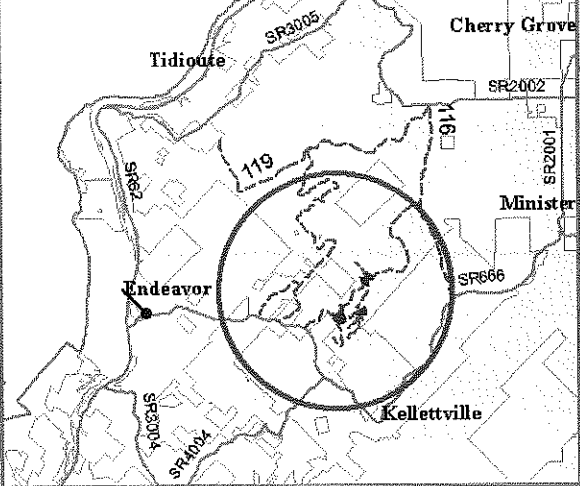
FR153

FK1342

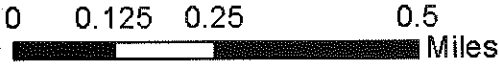


20130314 jem

*Allegheny National Forest*  
Location Map



1:15,000



## Schedule of Items

### FR 449C

Item	Description	Unit	Quantity
15101	Mobilization (Lump Sum)	All	1
23050	Brushing (light)	Mile	0.1
30115	Aggregate surface course, Type 1" minus, compaction method A	Ton	46
30326	Road reconditioning	Mile	0.1

### FR 449D

Item	Description	Unit	Quantity
15101	Mobilization (Lump Sum)	All	1
20301	Removal of culverts	Each	1
23050	Brushing (light)	Mile	0.2
30101	Aggregate base, grading PA-2A, compaction method A	Ton	46
30326	Road reconditioning	Mile	0.2
60201	16 inch steel pipe casing	Linear Foot	46
60263	Seeding, hydraulic or dry method (Lump Sum)	All	1
63301	Sign system (stop sign repair)	Each	1
65001	Furnish and Install Road Closure Device, Type Gate 21'	Each	1

### FR 450

Item	Description	Unit	Quantity
15101	Mobilization (Lump Sum)	All	1
23050	Brushing (medium)	Mile	0.1
30115	Aggregate surface course, Type 1" minus, compaction method A	Ton	271
30326	Road reconditioning (dozer)	Mile	0.1
62501	Seeding, hydraulic or dry method (Lump Sum)	All	1
63301	Sign system (stop sign)	Each	1

### General Notes

**-Prior to any earth disturbing activities, contractor shall call the Pennsylvania One Call System (800-242-1776) and all Oil & Gas Operators in the work area to determine locations of any underground utility lines.**

-All road work will be completed prior to timber haul, unless otherwise approved.

-Contractor is responsible for maintenance of all Forest Service roads over which pit run or commercial stone material is hauled. Roads shall be bladed or shaped to restore travel way to the condition found prior to haul.

-Culvert cleaning and repair will be considered incidental to road reconditioning.

- Contractor shall furnish, erect and maintain the minimum barricades and warning signs identified in the Special Project Specifications until final inspection and acceptance, unless otherwise directed by the Engineer. Signs shall conform to the Manual on Uniform Traffic Control Devices (MUTCD). **Contractor shall install "ROAD CONSTRUCTION AHEAD" signs on all roads in this project area and at ATV trail crossings. Contractor's sign plan must be approved by Forest Service prior to work. Signs will be covered on weekends, holidays and any days when contractor is not working.**

-Roads shall be completed in such a manner that water shall not pond on roadbed or in ditch lines.

-Contouring, topsoil respreading, seeding and mulching of disturbed areas as determined by the Forest Service is required.

-DSA limestone shall be shipped at optimum moisture content not exceeding 15%. Limestone loads that fail field test parameters will be rejected.

-When replacing culverts in live streams, contractor shall install silt fence and straw bales at approaches to live stream crossings to eliminate sediment in the stream course. When culverts are located on High Quality and Exceptional Value streams, contractor shall install compost filter socks. Any sediment collected will be removed and ground will be stabilized with seed and mulch. Dewatering pumps will be used to redirect water out of the stream course at the time of stream crossing installation. Silt fence and straw bales will be removed only after vegetation is clearly re-established as determined by the Engineer. Contractor is responsible for obtaining any Department Of Environmental Protection GP-11 or GP-7 stream crossing permits and preparing a Soil Erosion and Sediment Control Plan. This work will be considered incidental to Section 151 Mobilization.

-Roadway sod encountered during road reconditioning operations will be spread and leveled outside the road template avoiding piles. Natural terrain depressions and openings are the preferred waste locations. Seeding and mulching may be required to supplement natural revegetation.

-Vegetation cut down during roadside brushing will be pulled beyond the clearing limits and the toe of any roadway template construction. Mixing of soil and cut vegetation shall be avoided. All material will be scattered and lopped within 3' of the ground.

-Aggregate stockpiled for culvert replacement will be located on the existing road surface to assure maximum utilization of the material and eliminate disturbance of existing vegetated areas.

## Road Log - Work Descriptions

### FR 449 Midway (Level C)

Station	Road Log
0+00	Intersection with SR 666 heading east
74+45	FR 449D right, FR 449F left
152+00	FR 449C right, FR 450 left
281+25	FR 550 left, turnaround right
365+00	FR 116

### FR 449C Midway - C (Level C)

Station	Road Log/Work Description (11/2012)
0+00	Intersection with FR 449 station 152+00
56+50 – 61+00	<b>Recondition roadbed see TYPICAL RECONDITION SECTION, remove vegetation on road edges, road needs to be crowned, clean all culverts. Perform (light) roadside brushing see BRUSHING DETAIL</b>
0+30	STOP sign left, snowmobile sign left
0+50	Road number sign right
0+70	ATV/SNOWMOBILE sign right
1+20	Route #1 ASL Snowmobile sign right
1+65	Forest Service turnbuckle type gate
2+00	Narrow road sign right
4+20	18" x 26' CMP
4+95	STOP AHEAD sign left
6+85	18" x 28' CMP (2011)
7+40	Turnout right
9+50	18" x 26' CMP
13+20	18" x 26' CMP (2011)
13+75	Turnout right
17+85	Pull off left
22+00	18" x 26' CMP (2011)
26+40	18" x 28' CMP (2011)
26+40	Turnout right
31+70	18" x 28' CMP (2011)
32+20	OGM road right, steel pipe casing in right ditch line
35+55	18" x 28' CMP (2011)
38+00	Turnout left
39+83	OGM road right
41+00	18" x 28' CMP (2011)
44+35	18" x 30' CMP (2011)

44+90	OGM road right
48+05	Turnout right
51+20	Clearing right
52+75	Well right
53+55	18" x 28' CMP (2011)
56+50	<b>Begin road reconditioning, FR 449Ca right, sign shows FR 449Cc, re-number carsonite post (by others – Forest Service inspector)</b>
57+95 – 58+85	<b>Apply 6" of 1" minus (46 tons)</b>
60+00	Old road/landing left, end road reconditioning
63+85	FR 449Cc right, <b>sign shows FR 449E, re-number carsonite post (by others – Forest Service inspector)</b>
66+35	FR 449E left, <b>install by others (Forest Service inspector) new 449E sign, road continues</b>

**FR 449D Midway - D (Level D)**

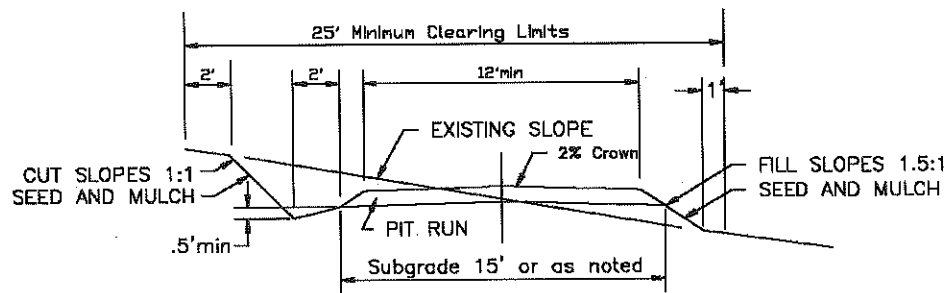
<b>Station</b>	<b>Road Log/Work Description (11/2012)</b>
0+00	Intersection with FR 449 station 74+45
0+00 – 9+35	<b>Recondition roadbed see TYPICAL RECONDITION SECTION, remove vegetation on road edges, road needs to be crowned. Perform (light) roadside brushing see BRUSHING DETAIL</b>
0+20	<b>STOP sign left, install new post on existing post to correct height (5 ft.), repair STOP sign by flattening bent spots, snowmobile sign left</b>
0+25	Road number sign right
0+30	<b>Remove gate, install new Forest Service gate (FS will provide “Foot Travel Welcome” sign), see GATE DETAIL</b>
0+60	18” x 22 CMP
3+30	<b>Remove 15” x 19’ steel casing, install 16” x 22’ steel casing, apply 23 tons of PA 2A (OGM retains ownership)</b>
4+60	Leadoff ditch right, <b>clean</b>
4+70	Old gated road left, landing
5+50	Plugged well left
5+80	<b>Install 16” x 24’ steel casing, apply 23 tons of PA 2A</b>
8+00	Leadoff ditch right, <b>clean</b>
9+05	2” pipeline crossing
9+35	Road curves sharply left, OGM road ahead and right, <b>end of road reconditioning</b>

**FR 450 Beaver Creek (Level C)**

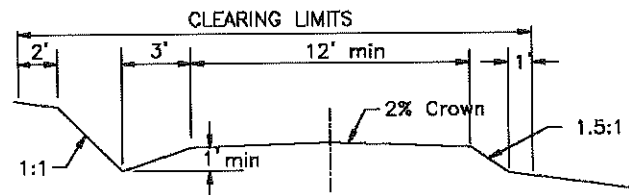
<b>Station</b>	<b>Road Log/Work Description (11/2012)</b>
0+00	Intersection with FR 449 station 152+00
0+00 – 6+10	<b><u>Dozer</u> recondition roadbed, see TYPICAL RECONDITION SECTION, disposed waste sod intermittently along road corridor, level then seed and mulch. Perform (medium) roadside brushing, see BRUSHING DETAIL. Remove down debris in road right of way beyond clearing limits, remove cut brush west away from fence, incidental to road recondition.</b>
0+00 – 6+00	<b>Apply 6" of 1" minus surfacing (225 tons)</b>
0+15	<b>Install STOP (high intensity reflectivity) sign (on 10' U channel post) left</b>
0+40	<b>Road number sign right</b>
5+25	<b>Reconstruct 60' x 20' turnaround right, apply 46 tons of 1" minus surfacing</b>
6+10	<b>Forest Service gate, end of road reconditioning</b>



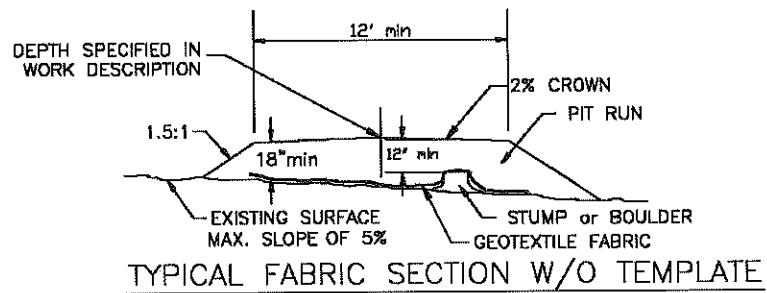
## Roadbed Details



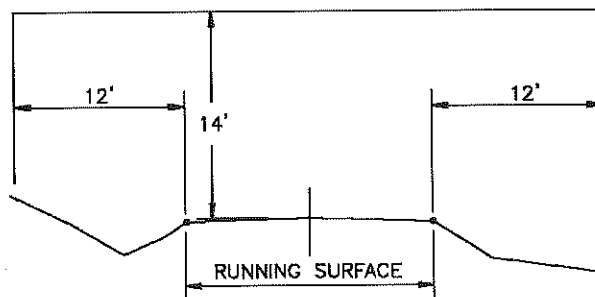
TYPICAL CONSTRUCTION SECTION



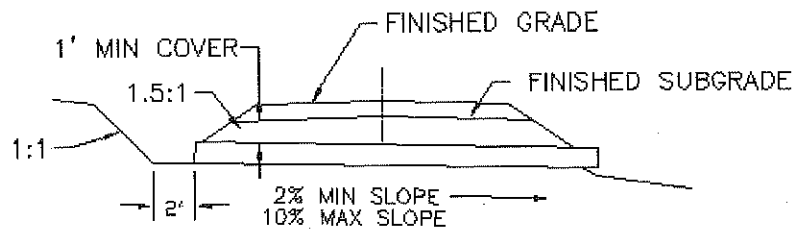
TYPICAL RECONDITION SECTION



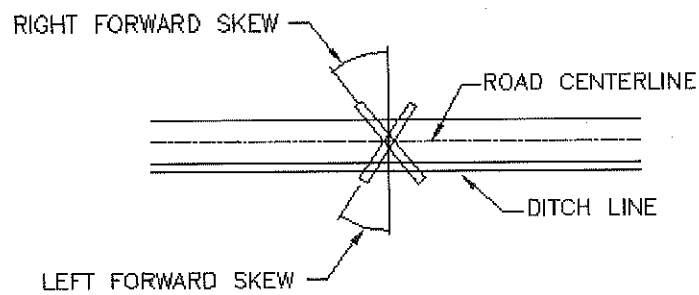
TYPICAL FABRIC SECTION W/O TEMPLATE



ROADSIDE BRUSHING DETAIL

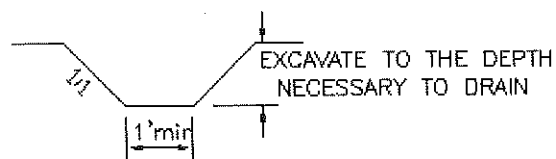


CULVERT SECTION

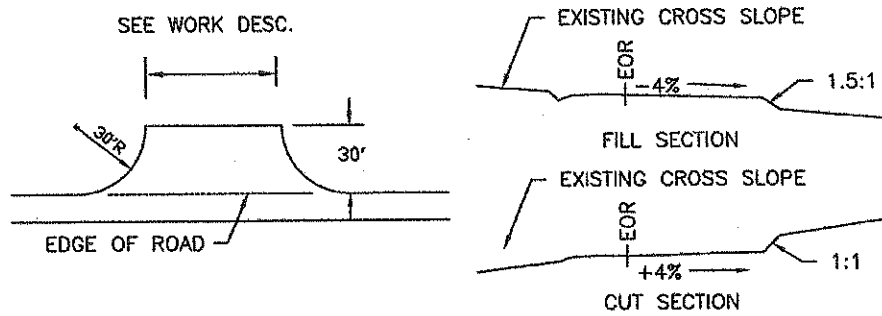


SKEW DETAIL

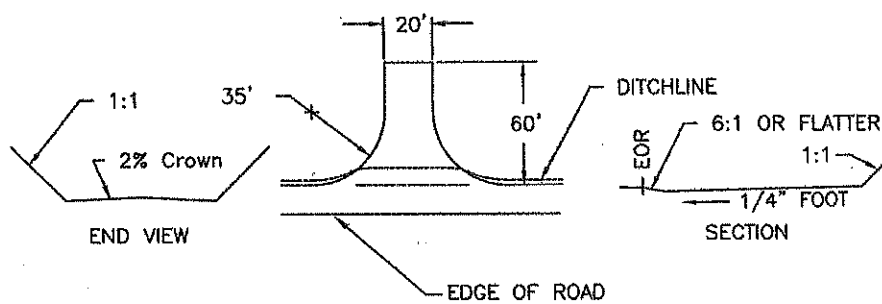
NOTE: Field locate ditch to minimize new clearing



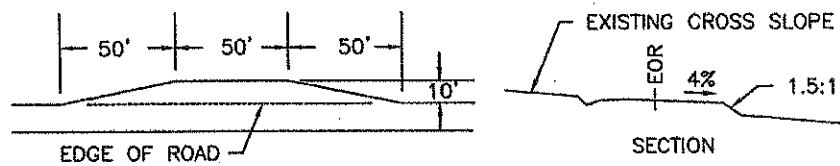
OUTLET/LEAD OFF DITCH SECTION



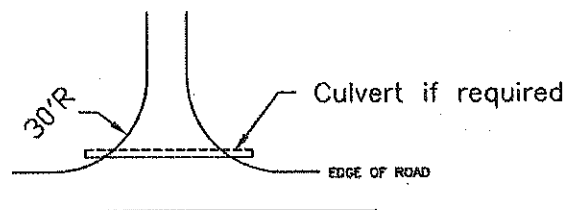
PARKING LOT DETAIL



TURNAROUND DETAIL



TURNOUT DETAIL



INTERSECTION DETAIL



## **SCHEDULE OF ITEMS, SPECIFICATIONS & DRAWINGS FOR SPECIFIED ROADS**

### **Contents**

Road Summary.....	2
Schedule of Items.....	3
Specifications.....	5
Preface.....	5
101 - Terms, Format, and Definitions.....	6
102 - Bid, Award, and Execution of Contract .....	9
103 - Scope of Work .....	10
104 - Control of Work.....	11
105 - Control of Material .....	12
106 - Acceptance of Work .....	13
107 - Legal Relations and Responsibility to the Public .....	14
108 - Prosecution and Progress.....	16
109 - Measurement and Payment.....	17
151 - Mobilization.....	18
155 - Schedules for Construction Contracts .....	19
201 - Clearing and Grubbing .....	20
203 - Removal of Structures and Obstructions .....	23
230 - Roadside Brushing.....	24
301 - Untreated Aggregate Courses.....	26
303 - Road Reconditioning .....	30
602 - Culverts and Drains .....	33
625 - Turf Establishment .....	34
633 - Permanent Traffic Control.....	37
650 - Road Closure Devices .....	38
SPS 703 - Aggregate.....	40

## Road Summary

### SPECIFIED ROADS

#### a. Description of Work:

##### **Reconstruction: FR 449C, FR 449D, FR 450**

Reconditioning of Roadbed, Mobilization, Culvert Installation, Seeding & Mulching,  
Removal of Culverts, and Brushing

#### b. Construction Costs:

<u>Road No.</u>	<u>Miles</u>	<u>Estimated Road Cost</u>	<u>Engineer's Estimate</u>	<u>Reconstruction Deposits</u>
449C	0.1 ®	\$1,688.00	\$1,997.00	\$500.00
449D	0.2 ®	\$5,903.00	\$6,678.00	\$1,500.00
450	0.1 ®	\$6,408.00	\$7,164.50	\$1,700.00
<u>Total</u>		<u>\$13,999.00</u>	<u>\$15,839.50</u>	<u>\$3,700.00</u>

Completion dates: 9/30/2014

Schedule of Items

FR 449C

Pay Item	Description	Pay Unit	Estimated Quantity	Unit Price	Extended Total	Engineer's Estimate Unit Price	Engineer's Extended Total
15101	Mobilization (Lump Sum)	All	1	600.00	\$ 600.00	800.00	\$ 800.00
23050	Brushing (light)	Mile	0.1	1400.00	\$ 140.00	1600.00	\$ 160.00
30115	Aggregate surface course, Type 1" minus, compaction method A	Ton	46	18.00	\$ 828.00	19.50	\$ 897.00
30326	Road reconditioning	Mile	0.1	1200.00	\$ 120.00	1400.00	\$ 140.00
<b>TOTAL</b>					<b>\$ 1,688.00</b>		<b>\$ 1,997.00</b>

FR 449D

Pay Item	Description	Pay Unit	Estimated Quantity	Unit Price	Extended Total	Engineer's Estimate Unit Price	Engineer's Extended Total
15101	Mobilization (Lump Sum)	All	1	1100.00	\$ 1,100.00	1300.00	\$ 1,300.00
20301	Removal of culverts	Each	1	118.00	\$ 118.00	136.00	\$ 136.00
23050	Brushing (light)	Mile	0.2	1400.00	\$ 280.00	1600.00	\$ 320.00
30101	Aggregate base, grading PA-2A, compaction method A	Ton	46	19.00	\$ 874.00	21.00	\$ 966.00
30326	Road reconditioning	Mile	0.2	1200.00	\$ 240.00	1400.00	\$ 280.00
60201	16 inch steel pipe casing	Linear Foot	46	33.50	\$ 1,541.00	36.00	\$ 1,656.00
60263	Seeding, hydraulic or dry method (Lump Sum)	All	1	200.00	\$ 200.00	260.00	\$ 260.00
63301	Sign system (stop sign repair)	Each	1	100.00	\$ 100.00	120.00	\$ 120.00
65001	Furnish and Install Road Closure Device, Type Gate 21'	Each	1	1450.00	\$ 1,450.00	1640.00	\$ 1,640.00
<b>TOTAL</b>					<b>\$ 5,903.00</b>		<b>\$ 6,678.00</b>

## FR 450

Pay Item	Description	Pay Unit	Estimated Quantity	Unit Price	Extended Total	Engineer's Estimate Unit Price	Engineer's Extended Total
15101	Mobilization (Lump Sum)	All	1	900.00	\$ 900.00	1100.00	\$ 1,100.00
23050	Brushing (medium)	Mile	0.1	1600.00	\$ 160.00	1900.00	\$ 190.00
30115	Aggregate surface course, Type 1" minus, compaction method A	Ton	271	18.00	\$ 4,878.00	19.50	\$ 5,284.50
30326	Road reconditioning (dozer)	Mile	0.1	1500.00	\$ 150.00	1900.00	\$ 190.00
62501	Seeding, hydraulic or dry method (Lump Sum)	All	1	200.00	\$ 200.00	260.00	\$ 260.00
63301	Sign system (stop sign)	Each	1	120.00	\$ 120.00	140.00	\$ 140.00
<b>TOTAL</b>					<b>\$ 6,408.00</b>		<b>\$ 7,164.50</b>



## Specifications

The following specifications will be used for this contract:

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects – FP-03 U.S. Customary Units. FP-03 is available on the internet at the following site: <http://flh.fhwa.dot.gov/resources/pse/specs/>

Supplemental Specifications – The specifications identified in this contract were prepared by the Forest Service and are a supplement to or change the FHWA specifications.

Special Project Specifications – Are specifications prepared on the Allegheny National Forest and pertain to Pennsylvania Department of Transportation nomenclature. These are designated SPS.

## Preface

Preface\_wo\_03\_15\_2004\_m

Delete all but the first paragraph and add the following:

The Forest Service, US Department of Agriculture has adopted FP-03 for construction of National Forest System Roads.

## 101 - Terms, Format, and Definitions

101.00\_nat\_us\_07\_25\_2005

101.01\_nat\_us\_01\_22\_2009

### 101.01 Meaning of Terms

Delete all references to the TAR (Transportation Acquisition Regulations) in the specifications.

101.03\_nat\_us\_06\_16\_2006

### 101.03 Abbreviations.

Add the following to (a) Acronyms:

AFPA	American Forest and Paper Association
MSHA	Mine Safety and Health Administration
NIST	<u>National Institute of Standards and Technology</u>
NESC	National Electrical Safety Code
WCLIB	West Coast Lumber Inspection Bureau

Add the following to (b) SI symbols:

mp	Milepost
ppm	Part Per Million

101.04\_nat\_us\_03\_29\_2007

### 101.04 Definitions.

Delete the following definitions and substitute the following:

**Bid Schedule**--The Schedule of Items.

**Bridge**--No definition.

**Contractor**--The individual or legal entity contracting with the Government for performance of prescribed work. In a timber sale contract, the contractor is the "purchaser".

**Culvert**--No definition.

**Right-of-Way**--A general term denoting (1) the privilege to pass over land in some particular line (including easement, lease, permit, or license to occupy, use, or traverse public or private lands), or (2) Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

Add the following:

**Adjustment in Contract Price**--“Equitable adjustment,” as used in the Federal Acquisition Regulations, or “construction cost adjustment,” as used in the Timber Sale Contract, as applicable.

**Change**--“Change” means “change order” as used in the Federal Acquisition Regulations, or “design change” as used in the Timber Sale Contract.

**Design Quantity**--“Design quantity” is a Forest Service method of measurement from the FS-96 *Forest Service Specifications for the Construction of Roads and Bridges*. Under these FP specifications this term is replaced by the term “Contract Quantities”.

**Forest Service**--The United States of America, acting through the Forest Service, U.S. Department of Agriculture.

**Neat Line**--A line defining the proposed or specified limits of an excavation or structure.

**Pioneer Road**--Temporary construction access built along the route of the project.

**Purchaser**--The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through agents, employees, or subcontractors.

**Protected Streamcourse**--A drainage shown on the plans or timber sale area map that requires designated mitigation measures.

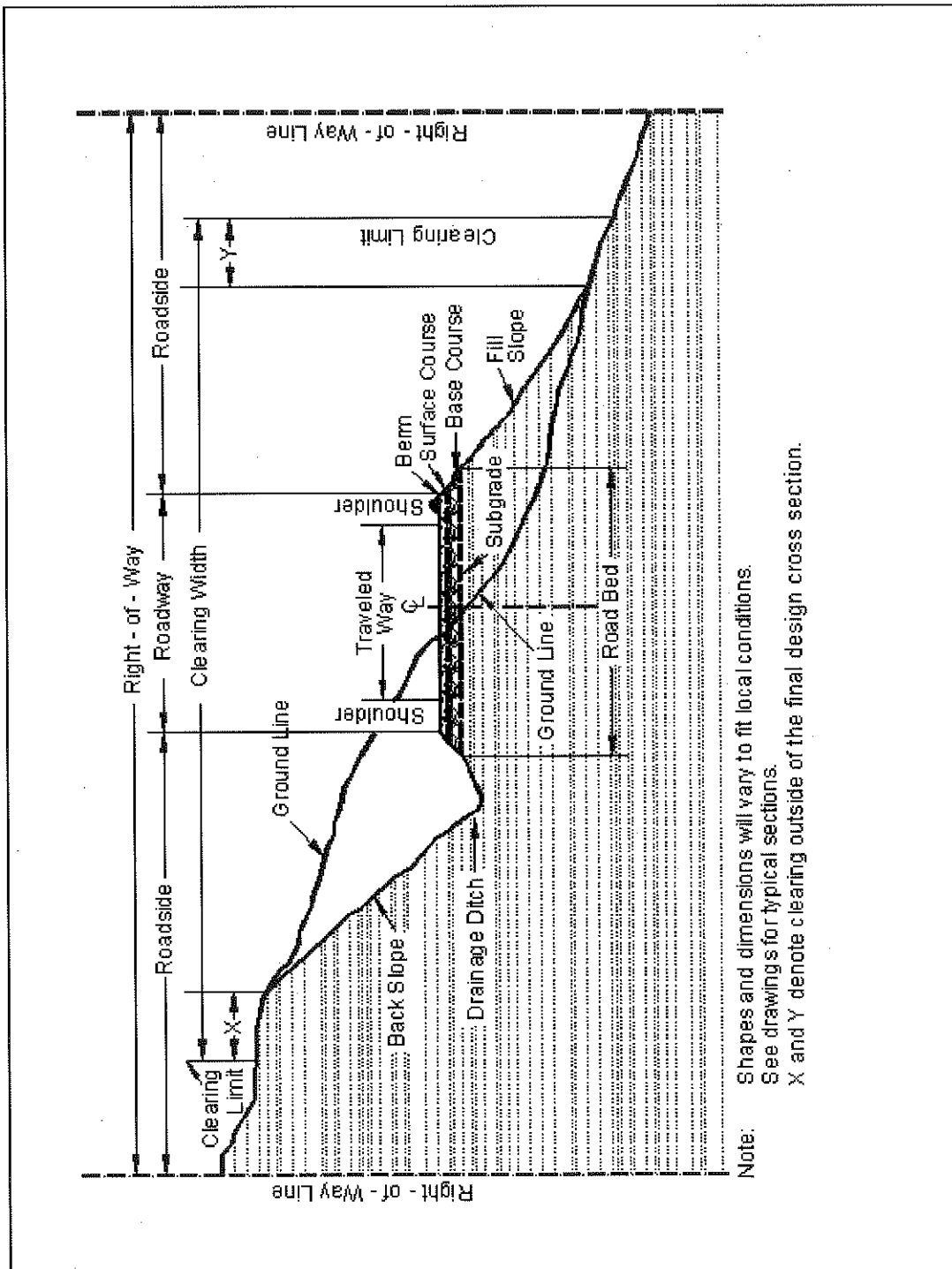
**Road Order**--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

**Schedule of Items**--A schedule in the contract that contains a listing and description of construction items, quantities, units of measure, unit price, and amount.

**Utilization Standards**--The minimum size and percent soundness of trees described in the specifications to determine merchantable timber.

Add Figure 101-1—Illustration of road structure terms:

Figure 101-1—Illustration of road structure terms.



## 102 - Bid, Award, and Execution of Contract

102.00\_nat\_us\_02\_16\_2005

### 102 Bid, Award, and Execution of Contract

Delete Section 102 in its entirety.

## 103 - Scope of Work

103.00\_nat\_us\_02\_16\_2005

### Deletions

Delete all but subsection 103.01 Intent of Contract.

## 104 - Control of Work

104.00\_nat\_us\_06\_16\_2006

### Deletions

Delete Sections 104.01, 104.02, and 104.04.

104.06\_nat\_us\_02\_17\_2005

Add the following subsection:

#### 104.06 Use of Roads by Contractor

The Contractor is authorized to use roads under the jurisdiction of the Forest Service for all activities necessary to complete this contract, subject to the limitations and authorizations designated in the Road Order(s) or described in the contract, when such use will not damage the roads or national forest resources, and when traffic can be accommodated safely.

## 105 - Control of Material

105.02\_nat\_us\_01\_18\_2007

### 105.02 Material Sources.

#### 105.02(a) Government-provided sources.

##### Add the following:

Comply with the requirements of 30 CFR 56, subparts B and H. Use all suitable material for aggregate regardless of size unless otherwise designated. When required, re-establish vegetation in disturbed areas according to section 625.

105.05\_nat\_us\_05\_12\_2004

#### 105.05 Use of Material Found in the Work.

##### Delete 105.05 (a) and (b) and the last sentence of the second paragraph and substitute the following:

Materials produced or processed from Government lands in excess of the quantities required for performance of this contract are the property of the Government. The Government is not obligated to make reimbursement for the cost of producing these materials.



## 106 - Acceptance of Work

106.07\_nat\_us\_05\_11\_2004

106.07 Delete

Delete subsection 106.07.

## 107 - Legal Relations and Responsibility to the Public

107.05\_nat\_us\_05\_11\_2004

### 107.05 Responsibility for Damage Claims.

Delete the entire subsection.

107.06\_nat\_us\_06\_16\_2006

### 107.06 Contractor's Responsibility for Work.

Delete the following from the first paragraph.

“except as provided in Subsection 106.07”.

107.09\_nat\_us\_06\_16\_2006

### 107.09 Legal Relationship of the Parties.

Delete the entire subsection.

107.10\_nat\_us\_06\_16\_2006

### 107.10 Environmental Protection.

Add the following:

Design and locate equipment repair shops, stationary refueling sites, or other facilities to minimize the potential and impacts of hazardous material spills on Government land.

Before beginning any work, submit a Hazardous Spill Plan. List actions to be taken in the event of a spill. Incorporate preventive measures to be taken, such as the location of mobile refueling facilities, storage and handling of hazardous materials, and similar information. Immediately notify the CO of all hazardous material spills. Provide a written narrative report form no later than 24 hours after the initial report and include the following:

- Description of the item spilled (including identity, quantity, manifest number, and other identifying information).
- Whether amount spilled is EPA or state reportable, and if so whether it was reported, and to whom.
- Exact time and location of spill including a description of the area involved.
- Containment procedures.
- Summary of any communications the Contractor had with news media, Federal, state and local regulatory agencies and officials, or Forest Service officials.
- Description of clean-up procedures employed or to be employed at the site including final disposition and disposal location of spill residue.

When available provide copies of all spill related clean up and closure documentation and correspondence from regulatory agencies.

The Contractor is solely responsible for all spills or leaks that occur during the performance of this contract. Clean up spills or leaks to the satisfaction of the CO and in a manner that complies with Federal, state, and local laws and regulations.

## 108 - Prosecution and Progress

108.00\_nat\_us\_02\_16\_2005

108 Delete.

Delete Section 108 in its entirety.

## 109 - Measurement and Payment

109.00\_nat\_us\_02\_17\_2005

### 109 Deletions

Delete the following entire subsections:

**109.06 Pricing of Adjustments.**

**109.07 Eliminated Work.**

**109.08 Progress Payments.**

**109.09 Final Payment.**

109.02\_nat\_us\_06\_16\_2006

### 109.02 Measurement Terms and Definitions.

**(b) Contract quantity.**

Add the following:

Contract quantities will be adjusted only when there are errors in the original design of 15% or more.

Change the following:

“(b) Cubic yard” to “(c) Cubic yard”.

Add the following definition:

**(p) Thousand Board Feet (Mbf).** 1,000 board feet based on nominal widths, thickness, and extreme usable length of each piece of lumber or timber actually incorporated in the job. For glued laminated timber, 1,000 board feet based on actual width, thickness, and length of each piece actually incorporated in the job.

## 151 - Mobilization

151.03\_nat\_us\_08\_05\_2005

### 151.03 Payment

Delete the entire subsection and add the following:

### 151.03 Payment

Mobilization is considered an indirect cost of this contract and will not be compensated as a separate work item.

## 155 - Schedules for Construction Contracts

155.00\_nat\_us\_05\_11\_2004

155 Delete.

Delete Section 155 in its entirety.

## 201 - Clearing and Grubbing

201.00\_nat\_us\_08\_05\_2009

### 201.02 Material:

Delete Tree wound dressing material reference.

### 201.03 General.

Delete the last sentence.

### 201.04 Clearing.

Delete the last sentence of (d).

### 201.01 Description

Replace with the following

This work consists of clearing and grubbing within clearing limits and other designated areas.

201.04\_nat\_us\_03\_03\_2005

## Construction Requirements

### 201.04 Clearing.

Add the following:

Utilization standards for merchantable timber are listed below. Fall and buck merchantable material into lengths not to exceed 40 feet. Pieces (logs) meet utilization standards when such pieces would have met Utilization Standards if bucking lengths were varied to include such material.

#### Minimum Utilization Standards

Length	Diameter (Inside Bark) at Small End	33-1/3% Net Scale in % of Gross Scale
8 feet	9.6 inches	



#### 201.04 Clearing. (c)

Delete paragraph (c) and replace with the following:

(c) In areas outside the excavation, embankment, and slope rounding limits, cut stumps to within 12 inches or one-third of the stump diameter of the ground, whichever is higher, measured on the side adjacent to the highest ground. For timber sales, stump heights will meet the requirements of the Timber Sale contract.

#### 201.04 Clearing.

Delete subsection (d) and replace with the following:

(d) Do not cut vegetation less than 3 feet tall and less than 3 inches in diameter, that is within the clearing limits but beyond the roadway and not in a decking area, and that does not interfere with sight distance along the road.

Add the following:

(e) Trim branches of remaining trees or shrubs to give a clear height of 14 feet above the roadbed unless otherwise indicated. Trim tree limbs as near flush with the trunk as practicable.

(f) Remove brush from log decks. Deck logs so that logs are piled parallel to one another; can be removed by standard log loading equipment; will not damage standing trees; will not interfere with drainage, and will not roll. Keep logs in log decks free of brush and soil.

201.04\_nat\_us\_02\_18\_2005

#### 201.04 Clearing.

Add the following:

When marked in advance, remove dead trees over 6 inches in diameter measured at 12 inches above the ground that lean toward the road and are tall enough to reach the roadbed.

201.06\_nat\_us\_11\_04\_2004

#### 201.06 Disposal.

Delete the first sentence of this subsection and substitute the following:

Merchantable timber removed from Forest Service land is subject to the Forest Resources Conservation and Shortage Relief Act of 1990 (PL 101-382; 104 Stat. 714-726; 16 USC 620 et. seq.). Do not export timber from the United States or use in direct or indirect substitution for unprocessed timber exported from the United States, from private lands by Purchaser, or any person as defined in Section 493 (16 USC 620e) of the Act.

Unless Forest Service determines that circumstances warrant a written waiver or adjustment, (1) hammer brand all products on both ends with an assigned contract brand before removal from the project site, (2) hammer brand each product exempt from domestic processing on both ends with an exempt brand registered for use on exempt logs from National Forest, and (3) paint all domestic processing products on both ends with 2 inch circle of yellow paint according to Interim Specification 2400-400 (available upon request). Paint or brand products before removing them from project site unless approved by the CO. Brands and yellow paint must remain on logs until they are processed.

Contractor may remanufacture logs into different log lengths as approved. Repaint or rebrand all remanufactured pieces. Pay all surveillance costs except that Forest Service may waive such payment if such costs are minor and part of normal remanufacturing operations.

## 203 - Removal of Structures and Obstructions

203.01\_nat\_us\_02\_25\_2005

### 203.01 Description.

Delete and replace with the following:

This work consists of disposing of construction slash and debris, salvaging, removing, and disposing of buildings, fences, structures, pavements, culverts, utilities, curbs, sidewalks, and other obstructions.

203.05\_nat\_us\_02\_24\_2005

### 203.05 Disposing of Material.

Add the following:

**(e): Scattering.** Scatter pieces of wood less than 3 inches in diameter and 3 feet in length within the clearing limits. Do not place construction slash in lakes, meadows, streams, or streambeds. Immediately remove construction slash that interferes with drainage structures.

203.08\_nat\_us\_02\_24\_2005

### 203.08 Payment

Add the following:

Disposal of construction slash will be compensated under the designated pay item in Section 201.

## 230 - Roadside Brushing

230.00\_0114\_us\_08\_04\_2005

### Description

**230.01 Work.** This work consists of removing all vegetative material including limbs, residual slash, live roadside brush, and small trees within the brushing limits designated on the plans.

### Construction

**230.02 Brushing.** Cut all brush and small trees (6 inches diameter, or less, at the point of cut) inside the brushing limits and outside the roadbed no higher than 4 inches above ground level (6 inches for machine brushing). If rocks or other obstructions are encountered, cut no higher than 6 inches above the obstruction. Limb live trees with a diameter larger than 6 inches to provide a clear height of 14 feet above the road surface.

Cut all brush and trees located on the roadbed as nearly flush to the road surface as possible so stumps will not become a hazard to vehicle tires.

**230.03 Windfalls.** Limb windfalls lying within or across the brushing limits, cut off at the top of the existing cut slope or 5 feet from the shoulder on the fill slope. Dispose of windfall material as slash.

**230.04 Road Junctions.** Do not deposit brushing debris on the roadway of adjoining roads.

**230.05 Slash Treatment.** Scatter slash outside the brushing limits without damaging residual trees. Slash is defined as any material that has a length greater than 36 inches or a diameter greater than 2 inches at any point. Do not deposit material in streams, streambeds, culvert inlets or outlets, drainage ways, or cattle guards.

**230.06 Acceptance.** Roadside brushing will be evaluated under Subsection 106.02.

### Measurement

**230.07 Method.** Measure the Section 230 items listed in the bid schedule according to Subsection 109.02 and the following.

Linear measurements will be horizontal along the road centerline.

Quantities will be the number of miles (or stations) and fractions thereof along the road centerline.

## **Payment**

**230.08.** The accepted quantities will be paid at the contract price per unit of measurement for the section 230 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 109.05.

## 301 - Untreated Aggregate Courses

301.00\_nat\_us\_03\_03\_2005

### 301 Title Change.

Change the title to: Section 301 Aggregate Courses

301.01\_nat\_us\_03\_03\_2005

### 301.01 Work.

Add the following:

Work includes producing aggregate by pit-run, grid rolling, screening, or crushing methods, or placing Government-furnished aggregate. Work may include additive mineral filler, or binder.

301.02\_nat\_us\_05\_16\_2005

### 301.02 Material.

Add the following:

Bentonite	725.30
Calcium Chloride Flake	725.02
Lignon Sulfonate	725.20
Magnesium Chloride Brine or Calcium Chloride Liquid	725.02

301.03\_nat\_us\_09\_14\_2005

### 301.03 General.

Add the following:

Written approval of the roadbed is required before placing aggregate.

For pit run or grid-rolled material, furnish material smaller than the maximum size. No gradation other than maximum size will be required for pit-run or grid-rolled material. For grid rolling, use all suitable material that can be reduced to maximum size. After processing on the road, remove all oversize material from the road and dispose of it as directed by the CO.

Provide additives or binder, if required, at the proportions specified.

Develop and use Government furnished sources according to Section 105.

If the aggregate is produced and stockpiled before placement, handle and stockpiled according to Section 320. Establish stockpile sites at locations approved. Clear and grub stockpile sites according to Section 201.

301.04\_nat\_us\_03\_03\_2005

#### 301.04 Mixing and Spreading.

Delete the first sentence of the first paragraph and add the following:

Ensure that aggregate and any required additives, water, mineral filler, and binder are mixed by the specified method except, if crushed aggregate products are being produced and mineral filler, binder, or additives are required, uniformly blend following crushing. Control additive proportions to 0.5 percent dry weight.

**(a) Stationary Plant Method.** Mix the aggregate with other required materials in an approved mixer. Add water during the mixing operation in the amount necessary to provide the moisture content for compacting to the specified density. After mixing, transport the aggregate to the jobsite while it contains the proper moisture content, and place it on the roadbed or base course using an aggregate spreader.

**(b) Travel Plant Method.** After placing the aggregate for each layer with an aggregate spreader or windrow-sizing device, uniformly mix it with other required materials using a traveling mixing plant. During mixing, add water to provide the necessary moisture content for compacting.

**(c) Road Mix Method.** After placing the aggregate for each layer, mix it with other required materials at the required moisture content until the mixture is uniform throughout. Mix aggregate, water, and all other materials until a uniform distribution is obtained.

Spread the aggregate in a uniform layer, with no segregation of size, and to a loose depth that will provide the required compacted thickness.

When placing aggregate over geotextile, place aggregate in a single lift to the full depth specified.

Route and distribute hauling and leveling equipment over the width and length of each layer.

301.05\_nat\_us\_05\_17\_2005

#### 301.05 Compacting

Delete and replace with the following:

Compact each layer full width. Roll from the sides to the center, parallel to the centerline of the road. Along curbs, headers, walls, and all places not accessible to the roller, compact the material with approved tampers or compactors.

Compact the aggregate using one of the following methods as specified:

**Compaction A.** Operating spreading and hauling equipment over the full width of the travelway.

**Compaction B.** Operate rollers and compact as specified in Subsection 204.11(a)(1).

**Compaction C.** Moisten or dry the aggregate to a uniform moisture content between 5 and 7 percent based on total dry weight of the mixture. Operate rollers and compact as specified in Subsection 204.11(a)(1).

**Compaction D.** Compact to a density of at least 95 percent of the maximum density, as determined by AASHTO T 99, method C or D.

**Compaction E.** Compact to a density of at least 96 percent of the maximum density, as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).

**Compaction F.** Compact to a density of at least 95 per-cent of the maximum density, as determined by AASHTO T 180, method C or D.

**Compaction G.** Compact to a density of at least 100 percent of the maximum density as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).

For all compaction methods, blade the surface of each layer during the compaction operations to remove irregularities and produce a smooth, even surface. When a density requirement is specified, determine the in place density and moisture content according to AASHTO T 310 or other approved test procedures.

301.06\_nat\_us\_03\_03\_2005

### **301.06 Surface Tolerance.**

**Add the following:**

**Thickness and Width requirements:**

The maximum variation from the compacted specified thickness is ½ inch. The compacted thickness is not consistently above or below the specified thickness and the average thickness of 4 random measurements for any ½ mile of road segment is within + ¼ inch of the specified thickness.

The maximum variation from the specified width will not exceed +12 inches at any point. The compacted width is not consistently above the specified width and the average of any four random measurements along any ½ mile of road segment is within +4 inches of the specified width.



301.09\_nat\_us\_07\_07\_2005

**301.09 Measurement.**

Replace the second paragraph with the following:

Measure aggregate by cubic yard compacted in place when payment is by contract quantities.

301.10\_nat\_us\_03\_03\_2005

**301.10 Payment**

Delete the following:

adjusted according to Subsection 106.05

## 303 - Road Reconditioning

303.00\_01\_us\_10\_11\_2006

Delete Section 303 in its entirety and replace with the following.

### Description

**303.01** This work consists of reconditioning ditches, shoulders, roadbeds, parking areas, turnouts, approach road intersections, cattleguards, asphalt surfaces and aggregate surfaces. Construct outslopes, clean and maintain all roadbed drainage structures when shown on the plans.

### Material

**303.02** Conform to the following Subsection:

Water 725.01

### Construction Requirements

**303.03 Ditch Reconditioning.** Remove all slide material, sediment, vegetation, and other debris from the existing ditches and culvert inlets and outlets. Reshape ditches and culvert inlets and outlets to achieve positive drainage and a uniform ditch width, depth, and grade. Dispose of waste as shown on the plans.

**303.04 Shoulder Reconditioning.** Repair soft and unstable areas according to Subsection 204.07. Remove all slide material, vegetation, and other debris from existing shoulders including shoulders of parking areas, turnouts, and other widened areas. Dispose of waste as shown on the plans.

**303.05 Roadbed Reconditioning** Repair soft and unstable areas according to Subsection 204.07. Remove all organic, deleterious material larger than 6 inches from the top 6 inches of subgrade. Dispose of waste as shown on the plans. Scarify, rip and shape the traveled way and shoulders at locations and to the depth and width designated on the plans. Remove surface irregularities and shape to provide a uniform surface.

Dispose of rock larger than 4 inches brought to the surface during scarification in areas designated on the plans.

For portions of roads not requiring scarification, the roadbed may contain rocks larger than 4 inches provided they do not extend above the finished roadbed surface. Reduce in

place or remove rock extending above the finished roadbed surface. Dispose of removed rock in areas designated on the plans.

Compact using the following method as specified:

- (a) Compaction A. Operate equipment over the full width.
- (b) Compaction B. Operate rollers over the full width of each layer until visual displacement ceases, but not fewer than three complete passes. Use rollers that meet the following requirements:
  - (1) Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than 250 pounds per inch of width of the compression roll or rolls.
  - (2) Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum weight of 6 tons, specifically designed to compact the material on which it is used.
  - (3) Pneumatic-tired rollers with smooth tread tires of equal size that will provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground pressure of at least 80 psi.

**303.06 Aggregate Surface Reconditioning.** Repair soft and unstable areas to the full depth of the aggregate surface and according to Subsection 204.07. Scarify to the depth of the aggregate surface or to a depth of 8 inches, whichever is less, and remove surface irregularities. Reshape, finish, and compact the entire aggregate surface according to Section 308.

**303.07 Roadway Reconditioning.** Perform all the applicable work described in Subsections 303.03 through 303.06.

Maintain the existing cross slope or crown unless otherwise shown on the plans. Establish a blading pattern that will retain the surfacing on the roadbed and provide a through mixing of the materials within the completed surface width.

Blade and shape the subgrade for both surfaced and unsurfaced roads when moisture content is suitable for compaction.

**303.08 Pulverizing.** Scarify the surface to the designated depth and width. Pulverize all material to a size one and one half times the maximum sized aggregate or to 1½ inches, whichever is greater. Mix, spread, compact, and finish the material according to Section 301.

**303.09 Acceptance.** See Table 303-1 for sampling and testing requirements. Road reconditioning work will be evaluated under Subsections 106.02 and 106.04.

## **Measurement**

**303.10** Measure the Section 303 items listed in the Schedule of Items according to Subsection 109.02 and the following as applicable.

Measure ditch reconditioning and shoulder reconditioning by the mile, by the station or foot horizontally along the centerline of the roadway for each side of the roadway.

Measure roadbed reconditioning, aggregate surface reconditioning, roadway reconditioning, and pulverizing by the mile, by the station, or by the square yard.

## **Payment**

**303.11** The accepted quantities will be paid at the contract price per unit of measurement for the Section 303 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

## 602 - Culverts and Drains

602.03\_nat\_us\_09\_06\_2005

### 602.03 General.

#### Add the following:

Ensure that the final installed alignment of all pipe allows no reverse grades, and does not permit horizontal and vertical alignments to vary from a straight line drawn from center of inlet to center of outlet by more than 2 percent of pipe center length or 1.0 feet, whichever is less.

## 625 - Turf Establishment

625.03\_nat\_us\_07\_02\_2007

### 625.03 General.

Delete this subsection and replace with the following:

Apply turf establishment to prepared ground or any disturbed area between April 15<sup>th</sup> and October 15<sup>th</sup>. Apply turf establishment to the areas shown on the plans or worklists within 7 days after completion of ground disturbing activities. Unless otherwise specified in writing by the CO apply turf establishment after each 1000 foot section of road has been constructed to template lines. Seeded areas damaged by construction activities shall be reseeded within 10 days of the damage. Do not seed during windy weather or when the ground is excessively wet, frozen, or snow covered.

Assure that all seed and mulch used in the work conforms to the weed free requirements of Section 713.

### 625.04 Preparing Seedbed.

Delete entire subsection and replace with the following:

Ensure that the surface soil is in a roughened condition favorable for germination and growth.

### 625.05 Watering

Delete entire subsection.

### 625.06 Fertilizing.

Delete entire subsection and replace with the following:

Apply fertilizer having a chemical analysis as listed below by the following methods.

**(a) Dry Method.** Apply the fertilizer with approved mechanical equipment. Hand operated methods are satisfactory on areas inaccessible to mechanical equipment.

**(b) Hydraulic method.** Use hydraulic-type equipment capable of providing a uniform application using water as the carrying agent. Add fertilizer to the slurry and mix before adding seed. Add the tracer material when designated by the CO.

**Fertilizer.** Apply fertilizer at the rate of 450 pounds per acre. Insure that the fertilizer meets the following chemical analysis:

<u>Nutrient</u>	<u>Percent</u>
Nitrogen, N .....	<u>10</u>
Phosphorus, P <sub>2</sub> O <sub>5</sub> .....	<u>20</u>
Potassium, K .....	<u>20</u>

#### 625.07 Seeding.

Delete the first sentence and add the following.

Apply seed mix by the following methods:

(a) **Dry method.** Delete the third sentence.

Add the following after subsection

(b).**Seed Mix.** Furnish and apply the following kinds and amounts of pure live seed from Ernst Conservation Seeds, 9006 Mercer Pike, Meadville, PA (800) 873-3221 or Fax (814) 336-5191 or [www.ernstseed.com](http://www.ernstseed.com) Native Right-of Way Woods Seed Mix with Annual Ryegrass-ERNMX-132-1:

<u>Type of Seed</u>	<u>Quantity of Pure Live Seed (Lbs/Acre)</u>
1. 30% Virginia Wild Rye	9
2. 20% Annual Rye Grass	6
3. 15% Shelter Switchgrass	4.5
4. 10% Creeping Red Fescue	3
5. 5% Autumn Bentgrass	3
6. 5% Fox Sedge	3
7. 5% Showy Tick Trefoil	3
8. 5% Nimble Will	3
9. 5% Tioga Deer Tongue	3

Total Seeding Rate 30lb per acre

Determine the pounds of seed to be furnished per acre by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

#### 625.08 Mulching.

Delete the entire subsection and replace with the following:

Apply Mulch within 24 hours after seeding by the following methods.

(a) **Dry Method.** Apply mulch with a hand spreader or a spreader utilizing forced air at a rate of 4000 pounds per acre. Anchor the mulch with an approved stabilizing emulsion tackifier at a rate of 0 gallons per acre. Do not mark or deface structure, pavements, utilities, or plant growth with tackifier.

(b) **Hydraulic Method.** Apply mulch in a separate application from the seed using hydraulic-type equipment according to Subsection 625.07(b).

Apply wood fiber or grass straw cellulose fiber mulch at a rate of 775 pounds per acre.

Apply bonded fiber matrix hydraulic mulch at a minimum rate of 775 pounds per acre. Apply so no hole in the matrix is greater than 0.04 inches. Apply so that no gaps exist between the matrix and the soil.

Inaccessible areas may be mulched by hand. Apply mulch uniformly over the entire disturbed area.

**625.09 Protecting and Caring for Seeded Areas**

Delete the first sentence and add the following:

Protect and care for seeded areas until final acceptance.

**625.11 Measurement.**

Delete the entire Subsection and replace with the following:

Measure the Section 625 items listed in the bid schedule according to Subsection 109.02.



## 633 - Permanent Traffic Control

633.02\_nat\_us\_03\_03\_2005

### 633.02 Material.

#### Add the following subsections

Protective Overlay Film	718.02
Edge Film	718.02

633.03\_nat\_us\_03\_03\_2005

### 633.03 General.

#### Delete the subsection and add the following:

Furnish traffic control devices and guide signs according to the MUTCD, approved USDA-FS and state supplements, the current edition of USDA-FS EM-7100-15 Sign and Poster Guidelines for the Forest Service, and Standard Highway Signs published by FHWA. Submit the sign list for approval before ordering.

633.05\_nat\_us\_03\_03\_2005

### 633.05 Panels.

#### Add the following:

Apply protective overlay film and top edge film as required and according to with manufacturer's recommendations.

Delete the sentence: "Use antitheft fasteners where possible" in the fifth paragraph and replace it with the following: "For each sign panel use at least one antitheft fastener."

## 650 - Road Closure Devices

650.00\_nat\_us\_06\_28\_2007

### Description

**650.01 Work.** Furnish and install, or install only, road closure devices using fabricated gates and accessories, combination post and rail barriers, concrete barriers, earth mound barriers, and other devices.

### Materials

**650.02 Requirements.** Furnish materials to be used in fabricating gates and barriers. Ensure that all hardware is galvanized in accordance with AASHTO M 232 and meets the requirements of ASTM A 307. Furnish plain or cut washers that are American Standard Washers.

Furnish timber posts, rails, and lumber that meet the requirements of AASHTO M 168. Provide timber of the species and type, and rate of preservative treatment. Furnish concrete that meets the requirements of Subsection 601.03, method B or C. Construct earth mound barriers from excavated material adjacent to the barrier location, or from other designated locations.

### Construction

**650.03 Performance.** Place road closure devices at designated locations. Construct all devices to the required dimensions. In assembling gates, perform required welding in accordance with the best modern practice and the applicable requirements of AWS D1.1.

After assembly, clean non-galvanized steel pipe gates and paint them with one coat of zinc-rich primer and two coats of exterior enamel of the required type and color.

Set all posts vertically and embed them to the required depth. Place concrete for embedment against undisturbed earth within an excavation sized to achieve the embedment dimensions. Compact the backfill in 6 inch layers to finished grade.

Furnish and install all signs and/or reflective warning markers accessory to the road closure device.

**650.04 Acceptance.** Construction of road closure devices will be evaluated under Subsections 106.02 and 106.04.

### Measurement

**650.05** Measure the items listed in the bid schedule according to Subsection 109.02.

### **Payment**

**650.06** The accepted quantities, measured as provided in Subsection 109.02 and above, will be paid at the contract price per unit of measurement for the Section 650 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

## SPS 703 - Aggregate

Add the following: **703.20 Driving Surface Aggregate.** All Driving Surface Aggregate (DSA) is to be derived from natural limestone formations. Stone is defined as rock that has been crushed; rock is defined as consolidated mineral material. For use in this program, both are restricted to that which has been mined or quarried from existing bedrock formations.

All components of the aggregate mix are to be derived from crushed parent rock material that meets program specifications for abrasion resistance, pH and freedom from contaminants. Ninety-eight percent (98%) of the fines passing the #200 sieve must be parent rock material. No clay or silt soil may be added. The amount of particles passing the #200 sieve shall be determined using the washing procedures specified in PTM No. 100.

Size: The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%
1 ½ inch	100%	
¾ inch	65%	90%
#4	30%	65%
#16	15%	30%
#200	10%	20%

LA Abrasion: The acceptable limit is measured by weight loss is “less than 40% loss”. Los Angeles Abrasion test, AASHTO T-96 (ASTM C 131) shall be used to determine this property. Existing tests made for and approved by PennDOT will be accepted.

Sulfate Test: Soundness or resistance to freeze/thaw (i.e. sulfate test) is not specified for this application because a gravel road driving surface aggregate is not bound within a concrete or asphalt mix.

pH: Aggregate must be within the range of pH 6 to pH 9 as measured by EPA 9045C.

Optimum Moisture: Material is to be delivered and placed at optimum moisture content as determined for the particular source. The optimum percentage moisture is to be identified by the supplier in the bid purchasing documents. Loads with excessive moisture shall be rejected. Water draining from the tailgate, excess material sticking to the roller drum or the inability to compact the material are field indicators of excess moisture. In addition, if a load is too dry or does not have enough fines it will be

rejected. Visual inspection of the load and poorly consolidated material after compactive effort are field indicators of low moisture or poor product gradation.

Transport: Tarps are to be used to cover 100% of the load's exposed surface from the time of loading until immediately before dumping. This requirement includes standing time waiting to dump.

**Aggregate producers are required by the program to certify that the aggregate they deliver conforms to the program specifications.** To eliminate segregation of material, stockpiling of material at jobsite will not be permitted unless authorized by COR.

The following are "Local" sources for this material:

Hawbaker – Turtlepoint, PA. 814-237-1444 or 814-642-2500

New Enterprise Stone & Lime Co. Tyrone, PA 814-695-4405

Road Preparation Specifications: The road surface to receive the aggregate should have template with crown of 2% or ¼ inch per foot. The receiving surface is to be scarified to permit knitting of the aggregate.

Driving Surface Aggregate Placement: Minimum compacted depth of four inches is to be established for driving surface. Driving Surface Aggregate is to be applied by tailgate spreading unless spreader box is specified. Material when placed shall be compacted as follows: Beginning on the lower or berm side of the crown, begin rolling and work your way to the top of the crown by overlapping the successive longitudinal passes. Do not run the roller lengthwise directly on the crown. Compaction with truck tires is not accepted. Steel wheel rollers other than vibratory shall be capable of exerting a force of not less than 250 pounds per inch of width of the compression roller or rollers. Rollers shall be self propelled with a minimum weight of 6 tons. Contractor must have certification in writing that material placed is Driving Surface Aggregate meeting this specification.

**1" Minus Aggregate (DSA Gravel non limestone) Size:** The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%	
1 ½ inch	100%		
¾ inch	65%	95%	
#4	30%	65%	LA Abrasion < 40%
#16	15%	30%	Sulfate Test – Not Applicable
#200	10%	15%	PH between 6 and 9

Material available at Glenn O. Hawbacker – Pittsfield Pit 814-563-7911

AI Construction Corporation – Gardland Plant 814-563-7680

**Pennsylvania 2A Gradation:**

The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%	
2 inch	100%		
¾ inch	52%	100%	
#4	24%	50%	LA Abrasion < 40%
#16	10%	30%	Sulfate Test – Not Applicable
#200	0%	10%	PH between 6 and 9

**AASHTO 57 Gradation:**

The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%
1-1/2 inch	100%	
1 inch	95%	100%
1/2 inch	25%	60%
#4	0%	10%
#8	0%	5%